

REMARKS

No claim amendments have been made in this Reply. Claims 1-4, 6-15, 17-25, 27-28, 30-31, 33-49, 52, and 54-63 are pending. Claims 1, 13, 17, and 52 are the independent claims.

Telephone Interview Summary

We thank Examiner Joseph H. Nguyen for taking the time to discuss the Application by telephone on December 19, 2006 with Applicants' representative Marc W. Wefers. During the interview, independent claims 1 and 52 were discussed along with Minoru (Japanese Patent Publication No. 2000-294832, "Minoru") and Hochstein (U.S. Patent No. 6,517,218, "Hochstein"). No agreement was reached.

During the course of the interview, the Examiner admitted that Minoru does not disclose a thermal connecting part that "extends through the opening in the mount part and connects to the mount part at the opening to transfer heat away from the mount part," but argued that, as stated in the action, Hochstein provides this subject matter. However, after further discussion, the Examiner admitted that the argument with regard to Hochstein on pages 2-3 of the Office Action of September 13, 2006, did not make sense. Specifically, the Examiner had previously alleged in the Office Action that thermal connecting part 30 extends through an opening in mount part 18 and connects to mount part 18 at the opening to transfer heat away from the mount part. During the interview, the Examiner agreed with Applicants' representative that mount part 18 does not in fact include an opening into which thermal connecting part 30 extends, and therefore the proposed combination of Minoru and Hochstein does not cover the claimed subject matter.

As best Applicants understand the Examiner's current position, each of the rejections of the pending claims are maintained as in the Office Action of September 13, 2006. The Examiner now alleges that Hochstein includes a mount part 32 (labeled on the right hand side of Fig. 2, in contrast to fins 32 on the bottom of Fig. 2) and a thermal connecting part 18 that extends through an opening in mount part 32. As set forth in detail below, Applicants traverse each of the rejections of the pending claims.

Argument

In view of the substance of the telephone interview of December 19, 2006, Applicants request that the claim rejections of record that rely on Hochstein be withdrawn. For the purpose of this reply, Applicants assume that the rejections of the pending claims are now based upon the Examiner's modified position as summarized above.

Claims 1-2, 6-7, 9, 12, 15, 27-28, 30-31, 33-40, 43-46, 49, 52, 58, and 60-61 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Minoru in view of Hochstein. With regard to independent claims 1 and 52, the Examiner admits that "Minoru does not disclose the thermal connecting part extending through the opening in the mount part and connecting to the mount part at the opening to transfer heat away from the mount part." (Office Action at page 2). However, the Examiner alleges that Hochstein discloses a mount part 32 and a thermal connecting part 18 extending through an opening in mount part 32, and that it would have been obvious to one of ordinary skill in the art at the time of the invention to combine Minoru and Hochstein. Applicants traverse, for at least the following reasons.

First, even if Minoru and Hochstein were combined as proposed by the Examiner, which Applicants do not concede, the combination still would not provide the subject matter covered by claims 1 and 52. Claim 1 recites leadframes for radiation-emitting components that include a mount part having "an opening formed therein and extending completely through the mount part" and a "thermal connecting part disposed in said opening and fastened into said mount part" (emphasis added). Claim 1 further recites that "the thermal connecting part extends through the opening in the mount part and connects to the mount part at the opening to transfer heat away from the mount part" (emphasis added). Claim 52 recites leadframes for radiation-emitting components that include a thermal connecting part that "extends through [an] opening in [a] mounting region and connects to the mounting region at the opening to transfer heat away from the mounting region" (emphasis added)."

Each of claims 1 and 52 therefore requires that the thermal connecting part connects to the mount part or mounting region, and further that the connection enables heat transfer away

from the mount part or mounting region. Hochstein fails to disclose such leadframes. For example, as shown in Fig. 2 of Hochstein, heat sink 18 extends through opening 36 in circuit board 32. However, heat sink 18 does not connect to circuit board 32 at opening 36. Instead, Fig. 2 (and also Fig. 3) shows a space between heat sink 18 and the edges of opening 36. Hochstein states that “heat sink 18 extend[s] through the opening 36 and [is] in spaced relationship to the circuit board 32” (Hochstein, col. 4, lines 23-24). There is simply no disclosure or suggestion in Hochstein that heat sink 18 connects to circuit board 32 at opening 36, as required by claims 1 and 52.

Furthermore, in the absence of any connection between heat sink 18 and circuit board 32, heat sink 18 is not configured to “transfer heat away from” circuit board 32, as required by claims 1 and 52. Instead, as shown in Fig. 2 of Hochstein, heat sink 18 is connected to heat dissipater 30, which dissipates excess heat. Hochstein states that “heat dissipater 30 is a heat sink of much larger thermal heat capacity and may include fins 32 for radiating heat to the ambient air” (id., col. 3, lines 33-35). In other words, heat sink 18 is spaced from circuit board 32 and connected instead to heat dissipater 30; excess heat is conveyed from heat sink 18 to heat dissipater 30 without the involvement of circuit board 32.

Moreover, there would have been no motivation to modify Hochstein to connect heat sink 18 to circuit board 32. If heat sink 18 was connected to circuit board 32, heat generated by diode 12 would be conveyed by heat sink 18 toward circuit board 32 (that is, toward the mount part or mounting region) rather than away from the mount part or mounting region, as required by claims 1 and 52. For example, Hochstein states that “[h]eat is preferentially driven through the heat sink element” (id., col. 4, lines 39-40). This heat would be transported into circuit board 32 from heat sink 18 if the circuit board and heat sink were connected. The deposition of large quantities of heat into circuit board 32 could damage the circuit board, for example. Thus, Hochstein neither discloses or suggests a thermal connecting part extending through an opening in a mount part or a mounting region, and connected to the mount part or mounting region “at the opening to transfer heat away from” the mount part or mounting region, as required by claims 1 and 52.

Second, there would have been no motivation for one of skill in the art at the time of the invention to modify Minoru according to Hochstein's disclosure. Minoru states that one of the objects of his invention is to produce a LED illumination device that is miniaturized and has a thin profile (see, for example, Minoru, paragraphs 007, 008, and 0026) for integration with other miniaturized electronic components. To yield a thin device, Minoru's alleged thermal connecting part, metal plate 20, is supported by – but does not extend all the way through – resin matrix 10. On the other hand, Hochstein discloses heat sink 18 that extends well beyond opening 36 in circuit board 32 and into heat dissipater 30 (see, for example, Fig. 2, and col. 4, lines 1-30 of Hochstein). Hochstein further states that "heat dissipater 30 is a heat sink of much larger thermal heat capacity and may include fins 32 for radiating heat to the ambient air" (Hochstein, col. 3, lines 33-35). In other words, heat dissipater 30 is an integral component of Hochstein's device, and functions to dissipate excess heat generated by light emitting diode 12.

Based on the Examiner's argument that heat sink 18 corresponds to the thermal connecting part and circuit board 32 corresponds to the mount part or mounting region of claims 1 and 52, there can be no reasonable dispute that modifying Minoru to include heat sink 18 and heat dissipater 30 as in Hochstein would significantly increase the thickness of Minoru's device, contrary to Minoru's stated objective of producing an illumination device with a thin profile. One of ordinary skill in the art at the time of the invention would not therefore be motivated to combine Minoru and Hochstein as alleged, because doing so would be contrary to Minoru's stated objectives.

Accordingly, Applicants ask the Examiner to withdraw the rejection of claims 1 and 52 under 35 U.S.C. § 103(a). The remaining claims 2, 6-7, 9, 12, 15, 28, 30-31, 33-40, 43-46, 49, 58, and 60-61 depend from either claim 1 or claim 52, and are therefore patentable for at least the same reasons. Thus, Applicants also request that the Examiner withdraw the rejection of these claims under 35 U.S.C. § 103(a).

Applicants note that claim 27 also stands rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Minoru in view of Hochstein. However, claim 27 depends from claim 17, which stands rejected according to a different combination of references. Accordingly,

Applicants have assumed for the purpose of this Reply that the Examiner's rejection of claim 17 also applies to claim 27, and therefore claim 27 will be addressed together with claim 17.

Claims 3 and 4 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Minoru and Hochstein in view of Barnett et al. (U.S. Patent No. 6,903,380, "Barnett"). The Examiner admits that neither Minoru or Hochstein discloses a thermal connecting part and a mount part connected by welding, but purports to find such disclosure in Barnett, and alleges that "it would have been obvious ... to modify Minoru and Hochstein by having the thermal connecting part and the mount part being connected by welding to effectively provide an electrical connection." (Office Action at pages 6-7).

Applicants traverse. Without addressing the merits of the proposed combination of Minoru, Hochstein, and Barnett – which Applicants do not concede – Applicants note that claims 3 and 4 depend from claim 1. As discussed above, the combination of Minoru and Hochstein does not disclose all of the subject matter of claim 1. In particular, Hochstein does not disclose a thermal connecting part "extend[ing] through [an] opening in [a] mount part and connect[ed] to the mount part at the opening to transfer heat away from the mount part" as required by claim 1. Instead, Hochstein's heat sink 18 is spaced from circuit board 32 within opening 36.

Moreover, it is not even likely that it would be possible to weld heat sink 18 to circuit board 32. Circuit boards are typically formed of materials such as plastic, and metal objects (e.g., heat sink 18) typically cannot be welded to plastic circuit boards.

In view of the foregoing, Applicants request that the Examiner withdraw the rejection of claims 3 and 4 under 35 U.S.C. § 103(a).

Claim 8 stands rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Minoru in view of Hochstein. The Examiner admits that neither Minoru nor Hochstein discloses a leadframe that includes a reflector well where the reflector well has a "height no greater than twice a height of the chip" as required by claim 8. However, the Examiner alleges that this limitation would have been obvious to one of ordinary skill in the art at the time of the invention (see Office Action at page 7).

Without addressing the merits of the Examiner's argument, Applicants note that claim 8 depends from claim 1. As discussed above, a proposed combination of Minoru and Hochstein does not yield the subject matter of claim 1, at least because Hochstein does not disclose a thermal connecting part "extend[ing] through [an] opening in [a] mount part and connect[ed] to the mount part at the opening to transfer heat away from the mount part" as required by claim 1. Instead, Hochstein's heat sink 18 is spaced from circuit board 32 within opening 36.

Claim 8 includes the limitations of claim 1, and is therefore patentable over Minoru and Hochstein for at least the same reasons. Accordingly, Applicants request that the Examiner withdraw the rejection of claim 8 under 35 U.S.C. § 103(a).

Claims 10-11 and 19-25 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Minoru and Hochstein in view of Waitl et al. (U.S. Patent No. 6,624,491, "Waitl"). The Examiner admits that neither Minoru nor Hochstein discloses a chip mounting area having a surface coating, but purports to find this disclosure in Waitl (see Office Action at pages 7-8).

Without addressing the merits of the proposed combination of Minoru, Hochstein, and Waitl, Applicants note that claims 10 and 11 depend from claim 1. As discussed above, a proposed combination of Minoru and Hochstein does not yield the subject matter of claim 1, at least because Hochstein does not disclose a thermal connecting part "extend[ing] through [an] opening in [a] mount part and connect[ed] to the mount part at the opening to transfer heat away from the mount part" as required by claim 1. Instead, Hochstein's heat sink 18 is spaced from circuit board 32 within opening 36.

Waitl does not cure the deficiencies of Minoru and Hochstein with regard to claim 1. Instead, Waitl discloses diode housings that include a diode chip with two layers (17 and 18) that is directly bonded to external conductor 4. External conductor 4 does not extend through an opening in a mount part, and is not connected to the mount at the opening to transfer heat away from the mount part. Accordingly, the proposed combination of Minoru, Hochstein, and Waitl does not yield the subject matter of claim 1.

Claims 10 and 11 include the limitations of claim 1, and are therefore patentable over Minoru, Hochstein, and Waitl for at least the same reasons. Accordingly, Applicants request that the Examiner withdraw the rejection of claims 10 and 11 under 35 U.S.C. § 103(a).

Applicants note that claims 19-25 also stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Minoru and Hochstein in view of Waitl. However, claims 19-25 depend from claim 17, which stands rejected according to a different combination of references. Accordingly, Applicants have assumed for the purpose of this Reply that the Examiner's rejection of claim 17 also applies to claims 19-25, and therefore claims 19-25 will be addressed together with claim 17.

Claims 13-14 and 59 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Minoru and Hochstein in view of Han et al. (U.S. Patent Publication No. 2001/0054761, "Han"). Independent claim 13 recites leadframes for radiation-emitting components that include a mount part having at least one wire connecting area and "an opening formed therein and extending completely through the mount part." The leadframes also include a thermal connecting part that "extends through the opening in the mount part and connects to the mount part at the opening to transfer heat away from the mount part." The Examiner alleges that Minoru and Hochstein disclose all of the limitations of claim 13 except for the "at least one external electrical connecting strip having a surface coating," and that "it would have been obvious at the time of the present invention to modify Minoru and Hochstein by having one external electrical connecting strip having a surface coating to provide an effective electrical connection of the semiconductor chip." (Office Action at page 10).

Applicants traverse. In fact, the proposed combination of Minoru and Hochstein does not disclose all of the limitations of claim 13 except for the at least one electrical connecting strip having a surface coating, as alleged by the Examiner, for at least the following reasons.

First, neither Minoru nor Hochstein discloses or suggests leadframes that include a thermal connecting part that extends through an opening in a mount part and connects to the mount part at the opening to transfer heat away from the mount part, as required by claim 13. As shown in Fig. 2 of Hochstein, heat sink 18 extends through opening 36 in circuit board 32.

However, heat sink 18 does not connect to circuit board 32 at opening 36. Instead, Fig. 2 (and also Fig. 3) shows a space between heat sink 18 and the edges of opening 36. Hochstein states that “heat sink 18 extend[s] through the opening 36 and [is] in spaced relationship to the circuit board 32” (Hochstein, col. 4, lines 23-24). There is simply no disclosure or suggestion in Hochstein that heat sink 18 connects to circuit board 32 at opening 36.

Furthermore, in the absence of any connection between heat sink 18 and circuit board 32, heat sink 18 is not configured to “transfer heat away from” circuit board 32, as required by claim 13. Instead, as shown in Fig. 2 of Hochstein, heat sink 18 is connected to heat dissipater 30, which dissipates excess heat. Hochstein states that “heat dissipater 30 is a heat sink of much larger thermal heat capacity and may include fins 32 for radiating heat to the ambient air” (id., col. 3, lines 33-35). In other words, heat sink 18 is spaced from circuit board 32 and connected instead to heat dissipater 30; excess heat is conveyed from heat sink 18 to heat dissipater 30 without the involvement of circuit board 32.

Moreover, there would have been no motivation to modify Hochstein to connect heat sink 18 to circuit board 32. If heat sink 18 was connected to circuit board 32, heat generated by diode 12 would be conveyed by heat sink 18 toward circuit board 32 (that is, toward the mount part or mounting region) rather than away from the mount part or mounting region, as required by claim 13. For example, Hochstein states that “[h]eat is preferentially driven through the heat sink element” (id., col. 4, lines 39-40). This heat would be transported into circuit board 32 from heat sink 18 if the circuit board and heat sink were connected. The deposition of large quantities of heat into circuit board 32 could damage the circuit board, for example. Thus, Hochstein neither discloses or suggests a thermal connecting part extending “through [an] opening in the mount part and connect[ed] to the mount part at the opening to transfer heat away from the mount part,” as required by claim 13.

Han does not remedy the deficiencies of Minoru and Hochstein with regard to claim 13. For example, with reference to Fig. 3 of Han, there is no disclosure in Han that relates to a thermal connecting part extending through an opening in a mount part. Instead, Han’s dies 42 and 50 are fixed to die pad 59, which is enclosed within structure 66. There is no hole extending

through structure 66, and die pad 59 is not configured to transfer heat away from structure 66. Accordingly, the proposed combination of Minoru, Hochstein, and Han does not yield the subject matter of claim 13.

Notwithstanding the failure of Han to remedy the deficiencies of Minoru and Hochstein with regard to claim 13, there further would have been no motivation to combine Minoru and Hochstein in the manner proposed by the Examiner for at least the reasons previously cited in connection with claims 1 and 52. Furthermore, there would have been no motivation to combine Han with either or both of Minoru and Hochstein. Han does not disclose or suggest leadframes for radiation emitting components. Instead, Han discloses “[a] dual-dies packaging structure” (Han, Abstract) for integrated circuits. There is no suggestion in Han that his packaging structures would be suitable for light emitting devices. Moreover, if the diodes of either Minoru or Hochstein were packaged as disclosed in Han, it is not clear from Fig. 3 of Han that light from the diodes would even be able to escape from the packaging structure, thereby preventing the functioning of Minoru’s and Hochstein’s light emitting devices.

Accordingly, Applicants ask the Examiner to withdraw the rejection of claim 13 under 35 U.S.C. § 103(a). Claims 14 and 59 depend from claim 13 and are therefore patentable for at least the same reasons. Thus, Applicants also request that the Examiner withdraw the rejection of these claims under 35 U.S.C. § 103(a).

Claims 41-42 and 47-48 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Minoru and Hochstein in view of Matsumoto et al. (Japanese Patent Publication No. 02-187058, “Matsumoto”). The Examiner admits that neither Minoru nor Hochstein discloses a chip being mounted on the chip mounting area by a silver solder, but purports to find this disclosure in Matsumoto (see Office Action at page 10).

Without addressing the merits of the proposed combination of Minoru, Hochstein, and Matsumoto, Applicants note that claims 41-42 and 47-48 depend from claim 1. As discussed previously, the proposed combination of Minoru and Hochstein does not yield the subject matter of claim 1, at least because Hochstein does not disclose a thermal connecting part “extend[ing] through [an] opening in [a] mount part and connect[ed] to the mount part at the opening to

transfer heat away from the mount part” as required by claim 1. Instead, Hochstein’s heat sink 18 is spaced from circuit board 32 within opening 36.

Matsumoto does not cure the deficiencies of Minoru and Hochstein with regard to claim 1. Matsumoto discloses semiconductor device packages that include a semiconductor chip 5 bonded to a silicon carbide ceramic board 2, which is in turn bonded to a fin-shaped cooling structure 10. However, Matsumoto’s ceramic board 2 does not extend through an opening in cooling structure 10, as required by claim 1. Accordingly, the proposed combination of Minoru, Hochstein, and Matsumoto does not yield the subject matter of claim 1.

Claims 41-42 and 47-48 include the limitations of claim 1, and are therefore patentable over Minoru, Hochstein, and Matsumoto for at least the same reasons. Accordingly, Applicants request that the Examiner withdraw the rejection of claims 41-42 and 47-48 under 35 U.S.C. § 103(a).

Claims 17-18, 54-57, and 62-63 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Minoru and Hochstein in view of Huang (U.S. Patent No. 6,664,649, “Huang”). Independent claim 17 recites housings for one or more light-emitting component that include, in part, a mount part having at least one wire connecting area and “an opening formed therein and extending completely through the mount part.” The housings also include a thermal connecting part that “extends through the opening in the mount part and connects to the mount part at the opening to transfer heat away from the mount part.” The Examiner alleges that Minoru and Hochstein disclose all of the limitations of claim 17 except for “an exterior surface to which the bearing surface mounts the housing,” and that “it would have been obvious at the time of the present invention to modify Minoru and Hochstein by including an exterior surface to which the bearing surface mounts the housing to further increase the heat dissipation efficiency,” as disclosed by Huang (Office Action at page 11).

Applicants traverse. In fact, the proposed combination of Minoru and Hochstein does not disclose all of the limitations of claim 17 except for an exterior surface to which the bearing surface mounts the housing, as alleged by the Examiner, for at the least the following reasons.

First, neither Minoru nor Hochstein discloses or suggests leadframes that include a thermal connecting part that extends through an opening in a mount part and connects to the mount part at the opening to transfer heat away from the mount part, as required by claim 17. As shown in Fig. 2 of Hochstein, heat sink 18 extends through opening 36 in circuit board 32. However, heat sink 18 does not connect to circuit board 32 at opening 36. Instead, Fig. 2 (and also Fig. 3) shows a space between heat sink 18 and the edges of opening 36. Hochstein states that “heat sink 18 extend[s] through the opening 36 and [is] in spaced relationship to the circuit board 32” (Hochstein, col. 4, lines 23-24). There is simply no disclosure or suggestion in Hochstein that heat sink 18 connects to circuit board 32 at opening 36.

Furthermore, in the absence of any connection between heat sink 18 and circuit board 32, heat sink 18 is not configured to “transfer heat away from” circuit board 32, as required by claim 17. Instead, as shown in Fig. 2 of Hochstein, heat sink 18 is connected to heat dissipater 30, which dissipates excess heat. Hochstein states that “heat dissipater 30 is a heat sink of much larger thermal heat capacity and may include fins 32 for radiating heat to the ambient air” (id., col. 3, lines 33-35). In other words, heat sink 18 is spaced from circuit board 32 and connected instead to heat dissipater 30; excess heat is conveyed from heat sink 18 to heat dissipater 30 without the involvement of circuit board 32.

Moreover, there would have been no motivation to modify Hochstein to connect heat sink 18 to circuit board 32. If heat sink 18 was connected to circuit board 32, heat generated by diode 12 would be conveyed by heat sink 18 toward circuit board 32 (that is, toward the mount part or mounting region) rather than away from the mount part or mounting region, as required by claim 17. For example, Hochstein states that “[h]eat is preferentially driven through the heat sink element” (id., col. 4, lines 39-40). This heat would be transported into circuit board 32 from heat sink 18 if the circuit board and heat sink were connected. The deposition of large quantities of heat into circuit board 32 could damage the circuit board, for example. Thus, Hochstein neither discloses or suggests a thermal connecting part extending “through [an] opening in the mount part and connect[ed] to the mount part at the opening to transfer heat away from the mount part,” as required by claim 17.

Huang does not remedy the deficiencies of Minoru and Hochstein with regard to claim 17, at least because there would have been no motivation to modify Minoru and Hochstein according to Huang, as proposed by the Examiner. With reference to Fig. 1 of Huang, Huang discloses semiconductor packages that include a chip 110 mounted to a leadframe 100. Huang states that “[t]he leadframe 100 is used for mounting a semiconductor chip 110 having an active surface 110a and an inactive surface 110b” (Huang, col. 2, lines 52-54). Huang further discloses that “heat sink 130 is mounted on the front side 102a of inner-lead portion 102 of the leadframe 100 and adhered to the same” (Huang, col. 3, lines 1-3). However, Huang’s semiconductor packages are not designed for use with light emitting diodes. Instead, Huang states that “DRAM (Dynamic Random Access Memory) devices, for instance, are usually packaged in this LOC configuration” (Huang, col. 1, lines 22-23). In other words, Huang’s semiconductor packages are designed for use with embedded semiconductor chips, not for use with light emitting diodes. As shown in Figs. 1-5 of Huang, if light emitting diodes were encapsulated in Huang’s packages, the light from the encapsulated diodes would not escape the packages, e.g., it would be absorbed either by the encapsulation material or the embedded heat sink.

In addition, Huang’s semiconductor packages do not include a “thermal connecting part having at least one chip mounting area” as required by claim 17. In fact, the structure of Huang’s thermal connecting part – heat sink 130 in Fig. 1, for example – is different from Hochstein in that Huang’s semiconductor chip 110 is not mounted to heat sink 130, but rather to leadframe 100. Huang’s heat sink is not used to connect chip 110 to leadframe 100; rather, “a plurality of bonding wires 120, such as gold wires … [are used] for the purpose of electrically coupling the semiconductor chip 110 to the leadframe 100.” (Huang, col. 2, lines 62-67). As a result, Huang’s thermal connecting part does not include the “at least one chip mounting area” required by claim 17. Furthermore, given the differences between Huang’s chip mounting scheme and the devices of Hochstein and Minoru, it would not have been obvious to one of ordinary skill in the art at the time of the invention to combine Hochstein and Minoru with Huang, as alleged by the Examiner.

Accordingly, the proposed combination of Minoru, Hochstein, and Han does not disclose or suggest the subject matter of claim 17. Moreover, notwithstanding the inadequacy of Huang with respect to a proposed combination with Minoru and Hochstein, there would have been no motivation to combine Minoru and Hochstein in the manner proposed by the Examiner, for at least the reasons previously cited in connection with claims 1 and 52.

Accordingly, Applicants ask the Examiner to withdraw the rejection of claim 17 under 35 U.S.C. § 103(a). Claims 18 and 54-57 depend from claim 17 and are therefore patentable for at least the same reasons. Thus, Applicants also request that the Examiner withdraw the rejection of these claims under 35 U.S.C. § 103(a).

Applicants note that claims 62-63 also stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Minoru and Hochstein in view of Huang. Claims 62-63 depend from claim 52. As discussed previously, Minoru and Hochstein fail to provide the subject matter of claim 52. Furthermore, as discussed above in connection with claim 17, Huang fails to remedy the deficiencies of Minoru and Hochstein. Accordingly, claims 62-63 are patentable for at least the same reasons as claim 52, and Applicants therefore request that the Examiner withdraw the rejection of these claims under 35 U.S.C. § 103(a).

Previously, claims 19-25 were rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over a combination of Minoru, Hochstein and Waitl. Claims 19-25 depend from claim 17 and, as discussed above, none of Minoru, Hochstein, and Huang, alone or in combination, discloses the subject matter of claim 17. As discussed previously in connection with claims 10 and 11, Waitl fails to remedy the deficiencies of Minoru, Hochstein, and Huang with regard to claim 17. Accordingly, claims 19-25 are patentable for at least the same reasons as claim 17, and Applicants therefore request that the Examiner withdraw the rejection of these claims under 35 U.S.C. § 103(a).

Similarly, claim 27 was rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over a combination of Minoru and Hochstein. Claim 27 depends from claim 17 and, as discussed above, none of Minoru, Hochstein, and Huang, alone or in combination, discloses the subject matter of claim 17. Accordingly, claim 27 is patentable for at least the

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same reasons as claim 17, and Applicants therefore request that the Examiner withdraw the rejection of this claim under 35 U.S.C. § 103(a).

Applicants believe that all pending claims are patentable, and respectfully request a Notice of Allowance.

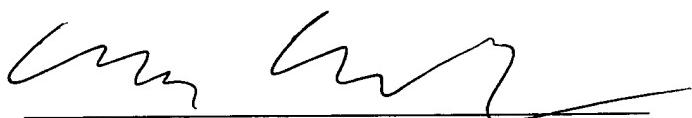
Canceled claims, if any, have been canceled without prejudice or disclaimer.

Any circumstance in which Applicants have (a) addressed certain comments of the Examiner does not mean that Applicants concede other comments of the Examiner, (b) made arguments for the patentability of some claims does not mean that there are not other good reasons for patentability of those claims and other claims, or (c) amended or canceled a claim does not mean that Applicants concede any of the Examiner's positions with respect to that claim or other claims.

Enclosed is a check for the Petition for Extension of Time fee. Please apply any other charges or credits to deposit account 06-1050, referencing Attorney Docket No. 12406-127001.

Respectfully submitted,

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